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VARIATIONS IN THE FORM OF THE BEAK,
THAT TAKE PLACE DURING ITS GROWTH,
IN THE SHORT-TAILED ALBATROSS
(*DIOMEDEA BRACHYURA*).

BY DR. R. W. SHUFELDT, U. S. ARMY.

SEVERAL years ago when Dr. Bean of the Smithsonian Institution was collecting in various parts of Alaska, he succeeded in securing four heads in the flesh of the Short-tailed Albatross. These were brought back to Washington in alcohol, along with the rest of the excellent material that was gathered during these explorations in our far-off possessions. Last October, before I left Washington for my present field of research in New Mexico, Dr. Bean very kindly presented me with the entire series of the above-mentioned heads, to be used as I saw fit in some of my anatomical studies of the group.

Before parting with them, however, he invited my attention to the marked differences that existed in the form, as well as the relations of the horny parts that covered the osseous beak.

The four heads in question undoubtedly belonged to individuals of very different ages, ranging from a 'bird of the year' to an apparently full-grown adult.

The specimen from which the beak in figure 1 was drawn, has the plumage of the head a yellowish white all over, while

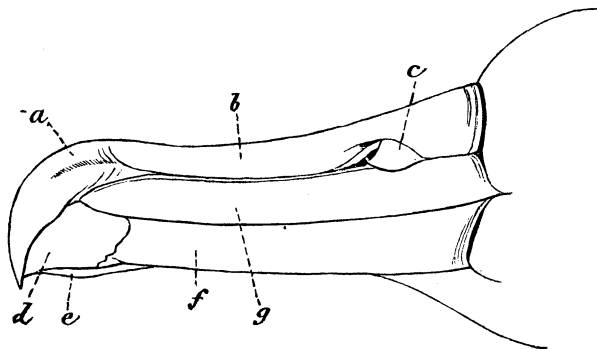


FIGURE 1. Left lateral view of the beak of *Diomedea brachyura*, adult. The letters direct attention to the various horny pieces that cover it. From nature, by John L. Ridgway and reduced one-half.

the head of the one from which figure 2 was taken has this color dashed here and there with pale brown.

In specimen No. 3 this brown becomes much deeper and is the prevailing color of the head, to the gular space and about the base of the superior mandible, in which localities it is of a dirty white. The last specimen has the plumage of the entire head a deep sooty brown, being somewhat paler in the parts where the dirty-white occurs in specimen No. 3. Of these four heads I take the specimen marked No. 1 in the figures to be the oldest, if not, as I have already said, a full-grown bird, while the others become younger and younger, as indicated by their numbers, No. 4 being the youngest of all.

The figures of these beaks were all drawn from the specimens by Mr. John L. Ridgway, a brother of the ornithologist. They are carefully and accurately done, as is all the work of this artist.

In figure 1 I have added the letters from *a* to *g* in order that we might have something to designate the parts by in referring

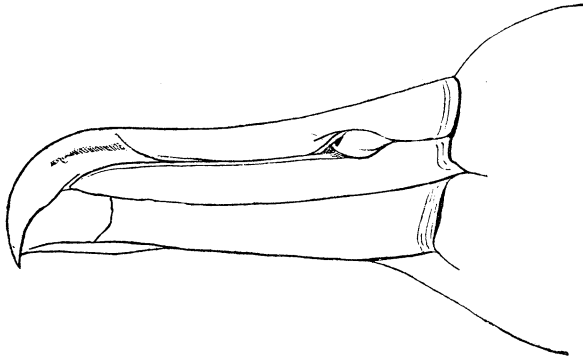


FIGURE 2. Left lateral aspect of the beak in *Diomedea brachyura*, a younger specimen than the one figured in Fig. 1. Reduced one-half from nature.

to them. The letters given in figure 1 refer to like pieces of the sheath in the other figures.

In the beak of an Albatross collected at the Cape of Good Hope, Africa, and presented to me many years ago, I find the little horny dome, covering the nostril and marked *c* in figure 1, to be a separate piece, and I presume the parts referred to by the other letters are likewise. It hardly seems possible, however, that any of these parts are ever moulted during the breeding sea-

son, a condition known to occur among the Alcidæ, as has been so well described through the admirable researches of L. Bureau, Stejneger, and others.

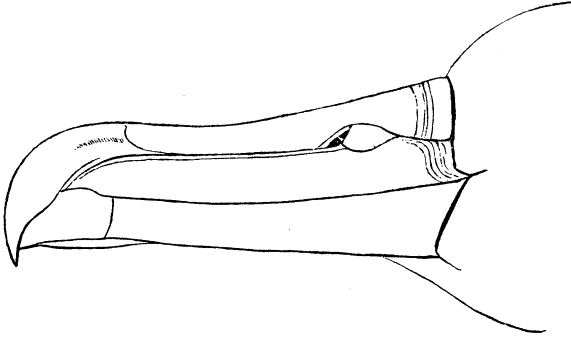


FIGURE 3. Left lateral view of the beak of *Diomedea brachyura*. A still younger specimen than No. 2. Reduced one-half from nature.

If we examine the beak of the adult Albatross shown in figure 1, it is at once noticeable that its general form differs very materially from the younger birds. This difference as a whole consists in a somewhat greater depth for the length of the beak as compared with the less matured individuals. The arch of the anterior extremity of the culmen formed by the piece marked *a* is considerably more convex in the adult than it is in figure 2, for instance, and the relation of this piece to the surrounding pieces, *b*, *d*, and *g*, is by no means exactly the same.

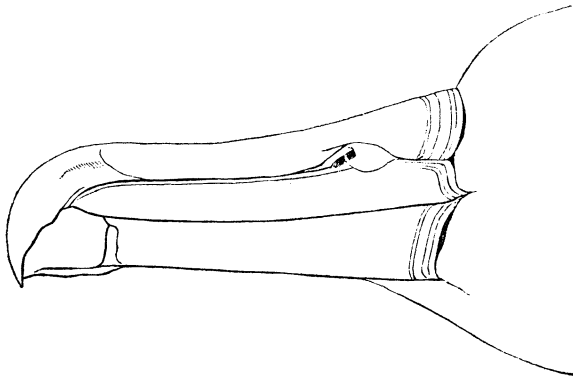


FIGURE 4. Left lateral aspect of the beak of *Diomedea brachyura*, the younger of the four shown in the figures. Reduced one-half from nature.

The piece marked *d* becomes relatively larger as the bird matures, while the piece *e* seems to vary both in form and length in the various specimens before me. We likewise notice that the forms assumed by the anterior extremities of the pieces *f* and *g* must vary with the differences already referred to, that take place in *a*, *d*, and *e*.

In the drawings here presented, which are such correct representations of the objects they depict, no doubt the reader will discover other interesting differences than those I have given above.

ANALECTA ORNITHOLOGICA.

Fifth Series.

BY LEONHARD STEJNEGER.

XXV. WHY *Chordeiles virginianus* AND NOT *Ch. popetue*?

IN order to answer this question I will first have to quote the description of the author who first established the binominal *Caprimulgus virginianus*. Gmelin gives the following account of the species (S. N., I, 1788, p. 1028) :

"Virginianus. 3. C. fuscus, transversim griseo-fusco et hinc inde cinereo-varius, subtus ex rubescente albus transversim striatus, menti macula trigona alba, area oculorum et cervice aurantiis maculis varia.

Caprimulgus minor americanus. *Syst. nat.* XII. 1. p. 346. 1. β. *Kalm it.* 3. p. 93.

Caprimulgus virginianus. *Briss. av.* 2. p. 477. n. 3.

Whip-poor-will. *Catesb. Car.* 3. t. 16. *Edw. av.* 2. t. 63. *Buff. hist. nat. des ois.* 6. p. 534.

Longwinged Goatsucker. *Arct. Zool.* 2. p. 436. n. 337. t. 18.

Virginia Goatsucker. *Lath. Syn.* II. 2. p. 595. n. 6
Genae ex cinereo fuscae; remiges atrae, 5 primae circa medium, rectrices extimae prope apicem macula alba notatae; pedes incarnati."

This description, considered alone, will be seen to fit the Nighthawk (Ridgw., Nomencl., No. 357) very well. Particu-